

## FAIL SAFE SWITCH FOR COMPUTER SYSTEMS

## FIELD OF THE INVENTION

The present invention relates generally to processing systems and more particularly to the power and reset circuitry for use with such processing systems.

## 5 BACKGROUND OF THE INVENTION

Modern computer systems have sophisticated power supplies that require more than one switch for powering up and down of the system. Many of these systems come with at least two switches that are accessed on the front of the system box for power on and off of the system and resetting the system. These switches are normally easily accessible and are  
10 required for the user to turn on and off the system. Also, normally they are in addition to any mains power switch which may also reside on the system chassis and which is usually found in the rear of the system and somewhat inaccessible.

However, although the power switch and to a lesser degree the reset switch must be easily accessible, accidental pressing of either switch can cause significant harm to the  
15 computer and interrupt possibly important computer functions that are in process. This invention provides a simple and elegant solution to such accidental interruptions of a computer system caused by unintended depression of the power switch or the reset switch

## SUMMARY OF THE INVENTION

20 In order to prevent accidental depression of a front panel power switch or front panel reset switch of a computer system, a circuit utilizing an additional safety switch, the SafeLock switch, is proposed that provides a simple but effective way of preventing accidental switch closures without adding significant cost or complexity to the original switch functions.

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## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows conventional circuitry used for power on-off and reset circuitry for a modern computer system.

30 Figure 2 shows the SafeLock system of switches for power on-off and reset circuitry.

## DETAILED DESCRIPTION

The present invention relates generally to the powering up and down as well as resetting of modern computer systems. The following description is presented to enable one of ordinary skill in the art to make and use the invention and is provided in the context of a patent application and its requirements. Various modifications to the preferred embodiment and the generic principles and features described herein will be readily apparent to those skilled in the art. Thus, the present invention is not intended to be limited to the embodiment shown but is to be accorded the widest scope consistent with the principles and features described herein.

Modern computer systems have sophisticated power supplies that require more than one switch for powering up and down of the system. Many of these systems come with at least two switches that are accessed on the front of the system box for power on and off of the system and resetting the system. These switches are made easily accessible because the power switch is required for the user to turn on and off the system and the reset is needed for recovery of system software malfunctions. Normally these two switches are in addition to any mains power switch which may also reside on the system chassis and which is usually found in the rear of the system and somewhat inaccessible.

Figure 1 shows a typical connection for a commonly found computer system 10. As is seen there are two separate circuits, a power on-off circuit 11 and a reset circuit 13. To power up or down the system, the user presses the power switch 12. To reset the computer, the user presses the reset switch 14.

Unfortunately, due to the sophisticated operating systems that are presently used, accidentally pressing either the power switch 12 or the reset switch 14 can cause significant harm to the system. Instead, the accepted method for shutting down a modern computer is to run a process on the system operating system which carefully shuts down all running programs and then allows the system to shutdown the system power solely under computer control.

Thus in general, a typical modern computer uses a mechanical switch to power up the system but uses the software of a running computer to shut down its power completely under software control. The use of a switch to shut a computer down or to reset the computer are normally reserved for recovery of a computer system which has some malfunctioning program or programs.

Because the accidental reset or power down of a running computer can have dire

consequences, it is advantageous to make sure that the user cannot cause a power down or reset of a computer system by accidentally pressing an easily accessible switch on the front panel of a computer. The current invention addresses this problem by preventing the user from accidentally cause a computer to shut down or to go into reset by the inadvertent  
5 contact with either the reset or power switch.

Figure 2 shows a Lock arrangement 100 of three switches referred to hereinafter as the SafeLock arrangement to perform the functions of power on-off and reset of a computer system. By the addition of a third switch, the SafeLock switch 102 which allows completion of the other two switch functions, accidental depression of either the power  
0 switch or the reset switch, can be prevented. For the desired functions to be performed, the user must now depress two switches. For instance, to power on the system, the user must press both the Power switch and the SafeLock Switch 102 at the same time. Similarly, to reset the system, the user must press both the Reset switch 14' and the SafeLock Switch 102 at the same time.

By placing the SafeLock switch 102 physically between the Power Switch 12' and the Reset Switch 14', the user can easily perform either function using two fingers. Yet, assuming that the SafeLock switch 102 is greater than a typical finger width away from either the power switch or the reset switch, it is very unlikely that the user will accidentally depress the two required switches for power on-off or reset.  
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## CONCLUSION

Modern computer systems require the user to have ready access to both a power on-off switch and a reset switch. However, the common method of using one switch for each function on the front panel of a computer is prone to accidental depressions that can cause  
10 significant problems for the computer user and the computer system. The present invention provides a low cost but highly reliable way to improve the reliability of instituting these functions by addition of another switch and a modified electronic circuitry.

Although the present invention has been described in accordance with the embodiments shown, one of ordinary skill in the art will readily recognize that there could be variations to the embodiments and those variations would be within the spirit and scope  
15 of the present invention. Accordingly, many modifications may be made by one of ordinary skill in the art without departing from the spirit and scope of the appended claims.